



(12) **United States Patent
Martin**

(10) **Patent No.: US 9,408,672 B2**
(45) **Date of Patent: Aug. 9, 2016**

(54) **METHOD AND APPARATUS FOR
FACILITATING ACCESS THROUGH A
PATIENT TISSUE**

USPC 30/286, 294; 227/139, 150; 606/1, 129,
606/130, 167–173, 176–178, 185, 215–219
See application file for complete search history.

(71) Applicant: **David Z. Martin**, Towson, MD (US)

(56) **References Cited**

(72) Inventor: **David Z. Martin**, Towson, MD (US)

U.S. PATENT DOCUMENTS

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 462 days.

2,932,296	A *	4/1960	Sanders	606/167
2,943,392	A *	7/1960	Attridge	30/310
3,698,395	A	10/1972	Hasson	
3,863,640	A *	2/1975	Haverstock	606/216
4,038,989	A *	8/1977	Romero-Sierra et al.	606/216
4,114,624	A *	9/1978	Haverstock	606/167
2006/0241691	A1 *	10/2006	Wilk	606/215
2013/0296930	A1 *	11/2013	Belson et al.	606/216

(21) Appl. No.: **13/906,568**

(22) Filed: **May 31, 2013**

* cited by examiner

(65) **Prior Publication Data**

US 2013/0324980 A1 Dec. 5, 2013

Related U.S. Application Data

(60) Provisional application No. 61/654,175, filed on Jun.
1, 2012.

Primary Examiner — Todd E Manahan

Assistant Examiner — Charles Wei

(74) *Attorney, Agent, or Firm* — Taroli, Sundheim, Covell &
Tummino LLP

(51) **Int. Cl.**

A61B 90/50	(2016.01)
A61B 17/00	(2006.01)
A61B 17/3209	(2006.01)
A61B 17/064	(2006.01)
A61B 17/068	(2006.01)
A61B 17/08	(2006.01)
A61B 17/32	(2006.01)

(52) **U.S. Cl.**

CPC **A61B 90/50** (2016.02); **A61B 17/00**
(2013.01); **A61B 17/0644** (2013.01); **A61B**
17/0684 (2013.01); **A61B 17/085** (2013.01);
A61B 17/32093 (2013.01); **A61B 2017/320052**
(2013.01)

(58) **Field of Classification Search**

CPC A61B 17/15; A61B 17/17; A61B 17/085;
A61B 2017/320056; A61B 2017/081; A61B
2017/085; A61B 17/151–17/158; A61B
17/32093; A61B 2017/320052; A61B 90/50

(57)

ABSTRACT

A system for facilitating access through a substantially planar and laterally oriented patient skin surface includes a guiding substrate extending substantially parallel to the skin surface and selectively directly fastened thereto. The guiding substrate supports a guiding structure in a substantially fixed relationship to an access site of the skin surface. A tool carriage is configured to accept surgical tools for sequential interaction with the access site. The tool carriage engages the guiding structure such that the tool carriage is guided along a predetermined action path when motive force is provided to the tool carriage. The tool carriage is guided along the action path with an incising tool in penetrating contact with the access site of the skin surface to create a laterally elongate incision at the access site. The tool carriage is guided along the action path to substantially close the incision at the access site.

32 Claims, 7 Drawing Sheets

